

## PATENT

Atty Docket No.: 10018744-1  
App. Ser. No.: 10/084,436

IN THE CLAIMS:

*Please find below a listing of all of the pending claims. The statuses of the claims are set forth in parentheses.*

1. (Currently Amended) A method of increasing peer privacy in a computer network including peers operable to exchange information via the network, wherein the peers include computing platforms, the method comprising:

~~receiving a request for data from a data requestor, wherein said data is stored at a data provider;~~

determining whether a data provider exists that stores the requested data;  
wherein the data provider is a peer of the peers;

selecting a plurality of the peers to form a path between said data provider and said data requestor, wherein said data provider and said data requestor are the respective ends of said path;

generating a mix according to said path, wherein the mix includes an anonymous identity of each of the plurality of peers in the path; and

transmitting said mix to said data provider.

2. (Original) The method according to claim 1, further comprising:

generating a first encryption key; and

encrypting said first encryption key with a public encryption key of said data provider.

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3. (Original) The method according to claim 2, further comprising:

encrypting said reference to said data with said first encryption key; and

encrypting said first encryption key with a public encryption key of said data requestor.

4. (Original) The method according to claim 4, further comprising:

transmitting said encrypted first encryption key with said public key of said data provider, said encrypted reference to said data, said mix, said first encryption key with said public encryption key of said data requestor to said data provider as a message to said data provider.

5. (Original) The method according to claim 4, further comprising:

receiving said message at said data provider;

decrypting said first encryption key with a complementary encryption key to said public key of said data provider; and

decrypting said data reference with said first encryption key.

6. (Original) The method according to claim 5, further comprising:

modifying said mix with said complementary encryption key to obtain a subsequent peer to said data provider along said path;

retrieving said data according to said data reference;

encrypting said data with said first encryption key; and

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transmitting said modified mix to said subsequent peer along with encrypted data and said first encryption key with said public encryption key of said data requestor as a modified message.

7. (Original) The method according to claim 5, further comprising:

receiving said modified message at a current peer along said path;  
modifying said mix with a complementary encryption key of said current peer to obtain a next peer along said path; and

transmitting said modified mix along with said encrypted data and said first encryption key of said data requestor as another modified message to said next peer.

8. (Original) The method according to claim 1, wherein said generation of said mix further comprises:

generating a decoy mix.

9. (Currently Amended) The method according to claim 8, further comprising:

forming a tuple comprising said data requestor and said decoy mix; and  
modifying said mix by encrypting said tuple with an encryption key of a peer subsequent to said data requestor provider in said path.

10. (Original) The method according to claim 9, wherein said encryption key comprises an public encryption key.

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11. (Original) The method according to claim 10, wherein said public encryption key is generated by one of an asymmetric encryption algorithm.

12. (Original) The method according to claim 1, wherein said generation of said mix further comprises:

selecting a current peer along said path;

forming a current tuple comprising said current peer and a previous mix; and

modifying said mix at said current peer by encrypting said current tuple with an encryption key of a subsequent peer to said current peer in said path.

13. (Original) The method according to claim 12, further comprising:

repeating said formation and modification until said current peer being said data provider.

14. (Currently Amended) A method of increasing peer privacy in a computer network including peers operable to exchange information via the network, wherein the peers include computing platforms, the method comprising:

receiving a message comprising a mix at a current peer, wherein the mix includes an anonymous identity of each of a plurality of peers in a path between a data provider and a data requestor in the network;

modifying said mix by applying a complementary encryption key of said current peer to said mix;

retrieving a subsequent peer to said current peer;

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modifying said message with said modified mix; and  
transmitting said modified message to said subsequent peer.

15. (Currently Amended) The method according to claim 14, further comprising:

selecting a plurality of peers to form ~~[[a]]~~ said path; and  
generating said mix according to said path.

16. (Currently Amended) The method according to claim 14, further comprising:

adding encrypted requested data to said message from ~~[[a]]~~ the data provider.

17. (Original) The method according to claim 14, further comprising:

generating a decoy mix, wherein said mix includes said decoy mix.

18. (Currently Amended) A system for increasing privacy in a computer network including peers operable to exchange information via the network, wherein the peers include computing platforms, the system comprising:

at least one processor;

memory coupled to said at least one processor; and

a privacy module residing in said memory and said privacy module executed by said at least one processor, wherein said privacy module is configured to:

~~receive a request for a data from a data requestor, wherein said data is stored at a data provider,~~

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determine whether a data provider exists that stores the requested data;  
wherein the data provider is a peer of the peers;  
select a plurality of the peers to form a path between said data provider  
and said data requestor, wherein said data provider and said data requestor are the respective  
ends of said path;  
generate a mix according to said path, wherein the mix includes an  
anonymous identity of each of the plurality of peers in the path; and  
transmit said mix to said data provider.

19. (Original) The system according to claim 18, wherein said privacy module is also configured to generate a first encryption key and to encrypt said first encryption key with a public encryption key of said data provider.

20. (Original) The system according to claim 19, wherein said privacy module is further configured to encrypt said reference to said data with said first encryption key and to encrypt said first encryption key with a public encryption key of said data requestor.

21. (Original) The system according to claim 20, wherein said privacy module is further configured to transmit said encrypted first encryption key with said public key of said data provider, said encrypted reference to said data, said mix, said first encryption key with said public encryption key of said data requestor to said data provider as a message to said data provider.

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22. (Currently Amended) An apparatus for increasing privacy in a data requester in a computer network including peers operable to exchange information via the network, wherein the peers include computing platforms, the apparatus comprising:

at least one processor;

memory coupled to said at least one processor; and

a privacy module residing in said memory and said privacy module executed by said at least one processor, wherein said privacy module is configured to receive a message at said data provider, said message comprises:

a mix configured to provide a path among a plurality of the peers between a data provider and a data requestor in the network, wherein the mix includes an anonymous identity of each of the plurality of peers in the path;

an encrypted reference to requested data encrypted with a first encryption key;

an encrypted first encryption key protected with a public key of said data requestor; and

said privacy module is also configured to decrypt said first encryption key with a complementary encryption key to said public key of said data provider and to decrypt said data reference with said first encryption key.

23. (Original) The system according to claim 22, wherein said privacy module is further configured to:

modify said mix with said complementary encryption key to obtain a subsequent peer to said data provider along said path;

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retrieve said data according to said data reference.  
encrypt said data with said first encryption key; and  
transmit said modified mix to said subsequent peer along with encrypted data  
and said first encryption key with said public encryption key of said data requestor as a  
modified message.

24. (Currently Amended) A computer readable storage medium on which is  
embedded one or more computer programs, said one or more computer programs  
implementing a method of increasing peer privacy in a computer network including peers  
operable to exchange information via the network, wherein the peers include computing  
platforms, said one or more computer programs comprising a set of instructions for:

receiving a request for data from a data requestor, ~~wherein said data is stored~~  
~~at a data provider;~~

determining whether a data provider exists that stores the requested data;  
wherein the data provider is a peer of the peers;

selecting a plurality of the peers to form a path between said data provider and  
said data requestor, wherein said data provider and said data requestor are the respective ends  
of said path;

generating a mix according to said path, wherein the mix includes an  
anonymous identity of each of the plurality of peers in the path; and

transmitting said mix to said data provider.

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25. (Original) The computer readable storage medium in according to claim 24, said one or more computer programs further comprising a set of instructions for:

generating a first encryption key; and

encrypting said first encryption key with a public encryption key of said data provider.

26. (Original) The computer readable storage medium in according to claim 25, said one or more computer programs further comprising a set of instructions for:

encrypting said reference to said data with said first encryption key; and

encrypting said first encryption key with a public encryption key of said data requestor.

27. (Original) The computer readable storage medium in according to claim 26, said one or more computer programs further comprising a set of instructions for:

transmitting said encrypted first encryption key with said public key of said data provider, said encrypted reference to said data, said mix, said first encryption key with said public encryption key of said data requestor to said data provider as a message to said data provider.

28. (Original) The computer readable storage medium in according to claim 27, said one or more computer programs further comprising a set of instructions for:

receiving said message at said data provider;

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decrypting said first encryption key with a complementary encryption key to said public key of said data provider; and

decrypting said data reference with said first encryption key.

29. (Original) The computer readable storage medium in according to claim 28, said one or more computer programs further comprising a set of instructions for:

modifying said mix with said complementary encryption key to obtain a subsequent peer to said data provider along said path;

retrieving said data according to said data reference;

encrypting said data with said first encryption key; and

transmitting said modified mix to said subsequent peer along with encrypted data and said first encryption key with said public encryption key of said data requestor as a modified message.

30. (Original) The computer readable storage medium in according to claim 29, said one or more computer programs further comprising a set of instructions for:

receiving said modified message at a current peer along said path;

modifying said mix with a complementary encryption key of said current peer to obtain a next peer along said path; and

transmitting said modified mix along with said encrypted data and said first encryption key of said data requestor as another modified message to said next peer.

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31. (Original) The computer readable storage medium in according to claim 24, said one or more computer programs further comprising a set of instructions for:

generating a decoy mix.

32. (Original) The computer readable storage medium in according to claim 31, said one or more computer programs further comprising a set of instructions for:

forming a tuple comprising said data requestor and said decoy mix; and

modifying said mix by encrypting said tuple with an encryption key of a peer subsequent to said data requestor in said path.

33. (Original) The computer readable storage medium in according to claim 32, said one or more computer programs further, wherein said encryption key comprises an public encryption key.

34. (Original) The computer readable storage medium in according to claim 33, said one or more computer programs further, wherein said public encryption key is generated by one of a symmetric encryption algorithm and an asymmetric encryption algorithm.

35. (Original) The computer readable storage medium in according to claim 24, said one or more computer programs further, , wherein said generation of said mix further comprises:

selecting a current peer along said path;

forming a current tuple comprising said current peer and a previous mix; and

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modifying said mix at said current peer by encrypting said current tuple with an encryption key of a subsequent peer to said current peer in said path.

36. (Original) The computer readable storage medium in according to claim 35, said one or more computer programs further comprising a set of instructions for:

repeating said formation and modification until said current peer being said data provider.